

ference, and consequently a portion of that body was left adhering to the uterus. During and after the operation, hemorrhage was very copious. The tissue of the placenta was softer than natural, and had apparently undergone a species of granular degeneration.

On the third day after delivery the lochial discharge became very offensive, and very soon chill and septicæmic fever of an adynamic type supervened.

The remains of the placenta occupied more than two weeks in dissolving and passing away. During this time the discharges were intolerably fetid. While this process was going on, the fever assumed the most serious and alarming type; but during the third week the lochiæ became natural, and the peculiar adynamic fever, which had reduced the patient to almost a hopeless condition, disappeared as if by magic.

In 1872 Mrs. R. again became pregnant, and was delivered of a living child. The placenta was found to be adherent in this instance also, but not to the extent as in the former case. All the adhering portion was carefully pinched off from the uterine surface. With the exception of some hemorrhage, no ill effects ensued.

It is proper to state here that the patient continued to suffer from rheumatic symptoms during this pregnancy.

In 1873 she again became pregnant. During this time she suffered considerably from her usual rheumatic affection.

In May, 1874, she was delivered of a large living child. On this, as on the two previous occasions, the placenta was adherent to fully one-half of its surface. The portion adhering was removed with the greatest care, by pinching every particle off. The medium of adhesion was composed of a very dense and tough exudation, apparently one-fourth of an inch thick. The hemorrhage was, for a time, quite copious.

While exploring the cavity during the operation, an indurated point was detected, very rugged and hard, and elevated above the mucous surface at least half an inch, and as large as the palm of the hand, surrounded with the soft and velvety mucous membrane of health, about the seat of the old placental adhesion. All of these adhesions were located in the front wall of the uterus.

In all of the cases of adhesive placenta which I have here reported, the females belonged either to the middle or lower classes, and were in the habit not only of performing daily labor, but also of frequent exposure to cold and wet.

During a practice extending over a period of more than twenty years, I have never witnessed an instance in the higher walks of life, or among the affluent. With but one exception, these females had been the subjects of a well-marked rheumatic diathesis.

Whether in these cases adherent placenta and rheumatic disease occupy the relationship of cause and effect, or, on the contrary, were merely coincidental, is a question of some interest. In five of the cases there were structural changes in the uterine tissue at the point of adhesion, indicating positively subacute inflammatory action of a circumscribed character; and though there was evidence also of degenerative change in the structure of the placenta, there was none of previous inflammation. But in the first case there were indications of organic uterine disease and placentitis, both associated in the same case. Two interesting questions naturally arise here: one, whether females who are the subjects of a rheumatic diathesis are more disposed to adherent placenta; the other,

whether or not the process of adhesion is the result of a local circumscribed inflammatory action of a rheumatic character, situated in the uterine tissue. The facts cited in the foregoing cases indicate very pointedly that the latter view is really the true one. There is another fact in connection with these cases, of interest: all of the children were not only living, but the most of them large and vigorous.

The history of these cases goes far to confirm the truth of the principle that evil consequences are infinitely more liable to result from leaving portions of placenta adhering to the walls of the uterus than from any mechanical injury inflicted during the operation of removing them from that organ; that while inflammation is rarely the consequence of the act of removal, septicæmia is the almost invariable result of leaving any portion in utero. It is astonishing how long a time a small portion of adherent placenta will require to undergo dissolution and discharge, and how little of it will act as a poisonous fountain to infect the system.

REPORT OF TWO CASES OF AMPUTATION IN WHICH A MODIFICATION OF THE ESMARCH APPARATUS WAS EMPLOYED.

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THE occurrence of paralysis of greater or less duration, consequent upon the employment of the Esmarch apparatus for bloodless operations, having been reported by Langenbeck, induced me, in the operations below reported, to substitute for the rubber tube as originally suggested by Esmarch a rubber band one-half the width of that which is applied to the extremity. This was done in the belief that the paralysis was caused by the direct and forcible pressure made by the tube over a limited surface, which it was hoped could be avoided by the use of the band, which would, as it were, distribute the pressure. It has been suggested, however, that it is not simply the pressure made by the tube which causes the impairment of nervous power in the part, but that accomplished by the entire bandage, applied as it is with firmness sufficient to expel the blood from the superficial and deep vessels of the part. Pressure so great as to accomplish this result must certainly affect both the large and the small nerve-trunks; at least, the benumbed feeling experienced after the application of the bandage would imply this.

In the cases thus far reported, the paralysis has disappeared under treatment which had to be continued for a variable length of time. It would therefore appear that whether the injurious effects were produced by the tube or by the tube and bandage combined, the pressure was not sufficient to destroy the integrity of the nerve-trunks and thus completely destroy their power of transmitting impressions. The experiments made by Dr. S. Weir Mitchell on the effects of pressure on nerves, and his remarks upon the subject in his admirable treatise on "Injuries of Nerves," are of interest in con-

nection with the conditions under discussion. In speaking of the mechanical influence of pressure, he says, "A nerve-trunk is made up of a multitude of tubes, the contents of which are so nearly fluid as probably to be capable of more or less movement to and fro. When to such a bundle we apply a tight ligature, no matter how soon it be relaxed, we annihilate at once all power of the nerve to transmit impressions past the injured zone. If, however, in place of this, we make *gradual and equal pressure*, we may so affect the nerve as for a time to destroy its power to carry impressions. Now, this is exactly what occurs in many cases of compression: the nerve is for a time incapacitated, but soon regains its normal abilities."

Even in the most exposed positions, as the median nerve in the middle third of the humerus, it is questionable whether the tube, applied with the firmness necessary to prevent the return of the blood to the vessels, could so far act as a ligature as permanently to injure the nerve. Without doubt it is capable of making such pressure as temporarily to destroy its power of carrying impressions. The band also applied to the entire extremity or the greater part of it makes forcible, but at the same time gradual and equal, pressure, and is quite sufficient, to my mind, to produce an interruption in the nervous current. It would seem, therefore, that paralysis both of sensation and of motion, to a greater or less extent, must necessarily follow upon the application of such pressure as will empty the deeper blood-vessels of a part and maintain them in this condition.

One of the cases in which the bandage was used being an amputation through the middle of the arm, it was of course impossible to gain any information upon this point from it. In the other the patient complained of numbness and loss of motion in the hand for ten days following the operation, although the bandage was applied only to the middle of the fore-arm.

Case I.—J. R., colored, æt. 37, has suffered from tertiary syphilis, losing cartilages and bones of the nose; at present is suffering from arthritis of the wrist-joint, which has undergone suppuration and has resisted all methods of treatment. The elbow-joint is also involved, being much enlarged; and showing evidences of suppuration within. The patient was placed upon tonic and specific treatment, which did not retard the progress of the disease and prevent deterioration of his health. The removal of the arm, so as to interrupt the constant drain upon his system, appeared to be the only plan of treatment which afforded any promise of success. In his wretched condition, destroyed as he almost seemed to be by the ravages of syphilis, it was a question whether interference with the knife would be followed by any reparative efforts on the part of nature. As will be seen, we were most happily disappointed in this respect. Covering the ulcerated surface with a compress (waxed paper is better), the wide band was applied, beginning at the fingers and continued to above the middle of the arm; the narrow band was then applied, and the wide one removed. Amputation by the anterior and posterior flap method was performed. The cut surfaces were perfectly bloodless-looking,—as expressed by one of the gentlemen present, like veal which had been well bled. Ligatures were applied to five arteries, which were pushed

out of the tissues, as it were, and were readily recognized. One small muscular branch was missed, and required ligature after the removal of the constricting band; slight oozing occurred, but was easily checked by the application of cold water; the flaps were sutured, and dry dressings were applied to the stump. Notwithstanding the most unfavorable surroundings, the patient recovered without an untoward symptom. The operation did not appear to produce any shock, the pulse maintaining a uniform rate and volume from the first. There were present at the operation Drs. Owen, U.S.N., Austin, Mann, Barr, Purcell, and Mr. Soder, medical student. To Dr. Purcell and Mr. Soder much credit is due for their faithful care of the patient.

In reviewing this case, it has occurred to me that the apparatus, by retaining to the system the blood contained in the arm, and preventing subsequent loss, contributed largely to success. The patient's condition was certainly such as forbade the loss of any great quantity of blood. None of the sequelæ attributed to the use of the apparatus occurred, such as excessive capillary oozing and sloughing of the flaps.

Case II.—Operation at Bedford Street Hospital, for removal of index-finger with metacarpal bone. A. S., æt. 32, German, twelve weeks previously had wounded index-finger with shoemaker's knife; sloughing of soft tissues, with necrosis of phalanges and metacarpal bone, supervened. Apparatus was applied, the narrow constricting band surrounding the middle of the forearm. The tissues were rendered bloodless, and the operation, which was tedious, owing to the condition of the parts and the desire to save as much of the hand as possible, was performed. Two vessels required ligation. After the removal of the constricting band, considerable capillary oozing took place, which was controlled by application of cold water. The parts were approximated by wire suture, and lint, wet with carbolic oil, was applied. The parts healed rapidly.

As stated above, impairment of sensation and motion in the hand followed the application of the apparatus, and persisted until the tenth day. Nothing was done to relieve it, and it spontaneously disappeared.

If we can reason from the facts in this case, it would appear that paralysis follows application of the narrow band as well as of the tube, but that, owing to the distribution of the pressure over a greater surface, the nerves are less affected and sooner regain their normal powers.

PYÆMIA IN THE HORSE.—Dr. Crombie reports (*Indian Medical Gazette*) a case of this disease occurring in a horse subsequent to an injury to the foot. The sore became phagedenic, the animal feverish, and at last gangrene and separation of the foot took place, followed by death. The post-mortem examination showed multiple abscesses, varying in size from a marble to a billiard-ball, scattered through the lungs and pleura, and in the former locality surrounded by a pneumonic condition. No abscesses were found elsewhere in the body. A breaking-down cheesy mass of degenerated gland-tissue was found in the axilla corresponding to the wound.

THE ACTION OF BROMIDE OF CALCIUM AND OF BROMIDE OF POTASSIUM.—The former salt acts only on the nerves, but it produces less sedative effect than the potassium bromide, and it does not act at all on the heart, as does the latter salt.—*Guttmann and Eulenburg—Ber. Klin. Wochenschrift.*